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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/610,269	07/06/2000	Dennis Bushmitch	MATI-193US	5547

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EXAMINER

SEFCHECK, GREGORY B

ART UNIT	PAPER NUMBER
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2662

DATE MAILED: 02/09/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/610,269

Applicant(s)

BUSHMITCH ET AL.

Examiner

Gregory B Sefcheck

Art Unit

2662

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 27 September 2004.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-17 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☒ Claim(s) 10-17 is/are allowed.
- 6) ☒ Claim(s) 1-9 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 27 September 2004 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☐ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____.
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____.

DETAILED ACTION

- Applicant's Amendment filed 9/27/2004 is acknowledged.
- The drawing amendment filed 9/27/2004 is approved.
- The previous rejection of claim 17 under 35 USC 112, 1st paragraph is withdrawn in light of the amendment.
- Claims 1-17 remain pending.

Claim Rejections - 35 USC § 103

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

2. Claims 1-5 and 8-9 are rejected under 35 U.S.C. 103(a) as being unpatentable over Eng et al. (US005751708A) in view of Surazski et al. (US006657983B1), hereafter Surazski.

- In regards to Claims 1, 4, and 5,

Eng discloses a method of transmitting data packets from an end-user device or remote terminal to a common system controller/scheduler through the use of allocated grants sent downstream to the remote unit by the system controller (Abstract; Col. 2, lines 17-35; claim 1 – method of transmitting packets upstream from a remote unit to a

system controller through allocated grants sent downstream from the controller to the remote unit).

By checking the end-user device's buffer for additional data (Col. 2, lines 1-8), Eng shows that the end-user device determines whether the bandwidth size of the data to be transmitted is greater than the size of the periodically allocated grant (claim 1 - determine bandwidth size of data and allocation; determine whether the data bandwidth size is greater than the allocated transmission grant).

If so, a piggyback request for a dynamically allocated grant is transmitted along with the first portion of the data (Col. 5, lines 15-24) in the original allocated grant (claim 1 - transmit first portion of data along with a request; claim 5 – first portion is less than allocated grant).

The request for a dynamically allocated grant communicates the size of the data remaining in the buffer (Col. 7, lines 27-30; claim 1 - request a dynamic grant equivalent to the size of the remaining data portion), so the transmission of that remaining portion of data can be completed in response to the allocation request (Col. 2, lines 28; claim 1/4 - transmit the remaining data at the requested or next grant).

Eng does not disclose individually unsolicited periodically allocated grants sent downstream from the controller to a remote unit for scheduling the upstream data packet transmissions.

Surazski discloses a method of allocating bandwidth for transmitting upstream cells from a CPE unit to a BTS (Abstract). Surazski discloses that these upstream

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transmissions are scheduled through individually unsolicited periodically allocated grants sent from the BTS on the downstream channel to each CPE unit (Figs. 2 and 9; Col. 3, lines 57-60; Col. 14-15, lines 39-40; claim 1 – individually unsolicited periodically allocated grants sent from controller to remote unit for scheduling upstream transmissions).

It would have been obvious to one skilled in the art at the time of the invention to modify the method of Eng by utilizing individually unsolicited periodic grants for allocating upstream transmission bandwidth to remote units, as shown by Surazski. This modification would increase bandwidth utilization by reducing the need to request transmission access to only those instances where the data for transmission exceeds the size of the unsolicited periodic transmission grants.

- In regards to Claim 2,

Eng v. Surazski discloses a method of transmitting data packets from an end-user device or remote terminal to a common system controller/scheduler through the use of individually unsolicited periodically allocated grants sent downstream to the remote unit by the system controller that covers all limitations of the parent claim.

Eng shows an iterative method that can determine if the bandwidth of the remaining portion of the first data packet plus any subsequent data is greater than the next allocated grant by checking the end-device's buffer for additional data (Col. 6, lines 31-35; claim 2 - determine if the combined size of remaining data and new data is greater than the size of the next grant)

If so, a request for a further dynamically allocated grant is sent along with the next allocated grant, containing the remaining data portion of the first packet and a first portion of the subsequent data. (Col. 6, lines 31-35; claim 2 - transmitting at least the remaining portion of data; requesting a further dynamically allocated grant along with the transmission; transmitting the remaining portion of the subsequent packet in response to the next available grant).

- In regards to Claim 3,

Eng v. Surazski discloses a method of transmitting data packets from an end-user device or remote terminal to a common system controller/scheduler through the use of individually unsolicited periodically allocated grants sent downstream to the remote unit by the system controller that covers all limitations of the parent claim.

Eng shows that the data packets to be transmitted are stored in a buffer, with transmission bandwidth requirements being determined by comparing the contents of the buffer to a threshold value (a threshold value of 0 – empty buffer; Col. 4, lines 56-60; Col. 6, lines 26-35; claim 3 - bandwidth size of packets determined by storing in a buffer and comparing the buffer to a threshold).

- In regards to Claim 8,

Eng v. Surazski discloses a method of transmitting data packets from an end-user device or remote terminal to a common system controller/scheduler through the

use of individually unsolicited periodically allocated grants sent downstream to the remote unit by the system controller that covers all limitations of the parent claim.

The method of Eng can be applied to a cable distribution system network for transmission of packets to and from end-user devices. (Col. 3, lines 22-25; network is data over cable system interface compliant)

- In regards to Claim 9,

Eng v. Surazski discloses a method of transmitting data packets from an end-user device or remote terminal to a common system controller/scheduler through the use of individually unsolicited periodically allocated grants sent downstream to the remote unit by the system controller that covers all limitations of the parent claim.

Eng discloses that the piggybacked request is transmitted in a designated slot (header) within the allocated grant. (Fig 3 and 6A; Col. 5, lines 15-24; claim 9 – request resides in an extended header of the first transmission)

3. Claims 6 and 7 are rejected under 35 U.S.C. 103(a) as being unpatentable over Eng in view of Surazski further in view of Lakshman (US006269078B1).

- In regards to Claims 6 and 7,

Eng v. Surazski discloses a method of transmitting data packets from an end-user device or remote terminal to a common system controller through the use of periodically allocated grants by the common system controller in order to maximize

bandwidth utilization and minimize latency of transmission. Eng v. Surazski further discloses the end-user device determining whether the bandwidth size of the data to be transmitted is greater than the size of the periodically allocated grant, and if so, transmits the first portion of the data in the periodically allocated grant along with a request for a dynamically allocated grant, so that the remaining portion of the data transmission can be completed in response to a next available grant. (Eng - Fig. 1B and 5; Col. 5, lines 15-24).

Eng v. Surazski does not expressly state that the data being transmitted are compressed video data packets, such as those pursuant to the motion picture experts group standard (MPEG).

Lakshman et al. show a method comprising a remote terminal being granted transmission requests based on the bandwidth size of data packets of variable-rate compressed video, such as MPEG video streams (referenced throughout Specification) from an end-user encoder or remote terminal to a common network or system controller (claim 6 – packet data is variable-rate compressed video data; claim 7 – video is MPEG).

It would have been obvious to one of ordinary skill in the art at the time of the invention to adapt the method of Eng v. Surazski by applying the method to the transport of variable-rate compressed video data, such as MPEG video, as taught by Lakshman, thereby satisfying MPEG compressed video's need for low latency transmission while maintaining high bandwidth utilization.

Allowable Subject Matter

4. Claims 10-17 are allowed.

Response to Arguments

5. Applicant's arguments filed 9/27/2004 have been fully considered but they are not persuasive.

- In the Remarks on pg. 7 of the Amendment, the Applicant contends that combining Surazski with Eng is improper because such combination would change the principle of operation of Surazski by adding solicited grant requests.
- The Examiner respectfully disagrees. The combination of Surazski with Eng is shown as to modify the method of Eng by utilizing the individually unsolicited grants shown by Surazski, where such a modification better utilizes the bandwidth in Eng by eliminating the need to request access for each transmission. The combination is not shown to modify Surazski with the solicited grant requests disclosed in Eng, as the Applicant contends.
- In the Remarks on pg. 7 of the Amendment, the Applicant contends that neither Eng nor Surazski discloses or suggests determining a bandwidth size for the stream of data packets and determining a bandwidth size for the individually unsolicited periodically allocated grants.

- It is the opinion of the Examiner that column 2, lines 1-8 of Eng shows determining bandwidth size of the data and corresponding allocation grants is based on acknowledging the arrival of packets in a buffer. The number of outstanding data packets (bandwidth size) based on the rate of arrival is maintained in the table shown in Fig. 2.
- In the Remarks on pg. 7 of the Amendment, the Applicant contends that Eng teaches that a system using only solicited grants is desirable.
- The Examiner respectfully disagrees. The cited portion of Eng discloses the advantages of explicitly announcing transmission permissions, such as collision avoidance and scheduler control. Meanwhile, Surazski shows that unsolicited grants can be useful in eliminating the delay of generating, transmitting, processing and responding to allocation requests, thereby providing motivation for one of ordinary skill in the art at the time of the invention to modify Eng with the unsolicited grants taught by Surazski.

Conclusion

6. THIS ACTION IS MADE FINAL. Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within

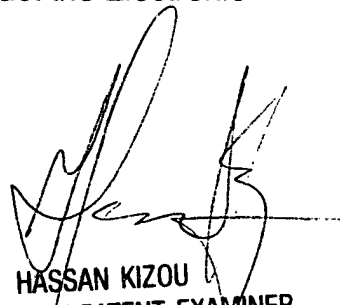
TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Gregory B Sefcheck whose telephone number is 571-272-3098. The examiner can normally be reached on Monday-Friday, 8:00am-4:30pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Hassan Kizou can be reached on 571-272-3088. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

GBS
1-27-2005



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